

Amendment of claims

1. cancelled
2. (currently amended) The apparatus of claim 64, wherein said means for receiving labels transports the labels away from the cutter assembly along a continuation of said flow path.
3. (previously presented) The apparatus of claim 2, wherein said means for receiving said labels contours the labels in a plane transverse to said flow path as the labels are transported away.
4. (previously presented) The apparatus of claim 2 further comprising: a source of web in roll form; and, means for delivering web from the roll to the upstream end of the means for feeding web, wherein the means for delivering causes the web to move along a free loop path.
5. (currently amended) The apparatus of claim 3, further comprising said sheet material positioned within the apparatus in the form of a portion of web contained within said means for feeding and in the form of at least one label contained within said means for feeding, wherein both the web and label is have a convex shape when viewed from the release side of the linerless label said sheet material.
6. (currently amended) Apparatus for forming linerless labels from web made of sheet material having a release side and a pressure sensitive adhesive side, which comprises:
means for feeding web along a flow path to a cutter assembly, for contouring web in a plane which is transverse to the flow path, and for projecting the web into space toward a cutter;

a cutter assembly, spaced apart from said means for feeding, for cutting the web repetitively, to form labels; and,

means for receiving said labels from the cutter assembly;

The apparatus of claim 1 wherein said means for feeding comprises

(a) at least one set of rollers comprising an upstream roller and a spaced apart downstream roller;

(b) at least three spaced apart endless belts running between said a-set of spaced apart upstream and downstream rollers, for contacting, contouring, and moving web downstream along said flow path; wherein one of said three belts has a transverse plane elevation different from the elevation of the other two belts at some point along the flow path.

7. (currently amended) The apparatus of claim 6 further comprising a portion of said sheet material positioned within the apparatus as a portion of web contained within said means for feeding, wherein said one belt contacts the lengthwise center of the web without contacting lengthwise-running regions of the web which are adjacent to said center.

8. (currently amended) The apparatus of claim 7 wherein said the belt means for feeding comprises at least two endless belts, each spaced apart from opposing sides of said one belt, and the two belts running between the rollers at a first elevation; wherein the elevation of said one belt changes progressively in the downstream flow path direction from said first elevation at the upstream roller to a second different elevation at the downstream roller.

9. cancelled

10. (currently amended) The apparatus of claim 7-6, wherein at least one of said belts runs around a part of the downstream end roller which has a diameter which causes stretching of the outer fiber of said at least one belt as it moves across the roller, to an extent sufficient to create breakaway strain on any adhesive bond between said at least one belt and the pressure sensitive adhesive side of web, the downstream end roller of said means for feeding, where a belt runs, has a diameter relative to the thickness of each belt sufficient to cause stretching of the outer fiber of each of the belts, and to thereby create breakaway strain on any adhesive bond between the belts and a web being moved along the flow path.

11. (currently amended) The apparatus of claim 1 Apparatus for forming linerless labels from web made of sheet material having a release side and a pressure sensitive adhesive side, which comprises:

belt means for feeding web along a flow path to a cutter assembly, for contouring web in a plane which is transverse to the flow path, and for projecting the web into space toward a cutter;

a cutter assembly, spaced apart from said means for feeding, for cutting the web repetitively, to form labels; and,

means for receiving said labels from the cutter assembly;

wherein said means for feeding comprises:

an upstream roller and a downstream roller; and,

an endless profile belt running around said rollers, for contacting said web, to move the web along said flow path and to contour the web in a said transverse plane;

wherein said profile belt comprises (a) an endless belt base; (b) a central land; and (c) a pair of spaced apart opposing side wings; wherein the land and wings run along the length of the endless belt base and project outwardly from the endless belt base.

12. (previously presented) The apparatus of claim 11 wherein said wings are continuous along the length of the belt base, wherein when the belt contacts and runs around the surfaces of said rollers during use, the wings flatten toward the belt base.

13. (currently amended) The apparatus of claims 7-~~of 9~~, further comprising: means for pressing the web toward said one belt, as the web moves downstream in contact with the one belt.

14. (currently amended) The apparatus of claim 11 further comprising: means for pressing the lengthwise center portion of the web toward the central land of the profile belt, as the web moves downstream with the belt.

15. (previously presented) The apparatus of claim 14 wherein said means for pressing is a pinch roller having a width greater than the width of the central land of the belt.

16. (currently amended) The apparatus of claim 1 Apparatus for forming linerless labels from web made of sheet material having a release side and a pressure sensitive adhesive side, which comprises:

means for feeding web along a flow path to a cutter assembly, for contouring web in a plane which is transverse to the flow path, and for projecting the web into space toward a cutter;

a cutter assembly, spaced apart from said means for feeding, for cutting the web repetitively, to form labels; and,

means for receiving said labels from the cutter assembly;

wherein said means for feeding comprises:

an upstream roller and a downstream roller; and,

at least one endless ~~belt~~ belt running around the rollers, for contacting the adhesive side of the web, to thereby move the web along said flow path;

wherein the downstream roller has ~~only~~ a pair of spaced apart circumferential rings running around straddling the roller region upon which the said at least one belt runs ~~belt or belts run~~, the rings having outside diameters greater than the outside diameter of the surface of the ~~belt or belts running~~ said at least one belt as the belt runs around said roller, so that when said sheet material contacts said at least one belt and said rings when running over said downstream roller, the web is thereby contoured in a plane transverse to said flow path; -

the apparatus further comprising a portion of sheet material contained within said means for feeding as a portion of web; wherein the pressure sensitive adhesive side of the web is adhered to said at least one belt; and, wherein said web is contoured in a plane transverse to said flow path, the web having a convex shape when viewed from the release side of said sheet material.

17 to 22. (cancelled)

23. (currently amended) The apparatus of claim 61 wherein the cutter assembly comprises: a rotatable knife; an opposing rotatable anvil; and, means for cooling the anvil.

24. (currently amended) The apparatus of claim 4-6 wherein the cutter assembly comprises: a rotatable knife cylinder with knife; an opposing rotatable cylindrical anvil in contact with the knife cylinder; and, means for resiliently pressing together the knife cylinder and the anvil, so that cylindrical rotation of either rotates the other by frictional engagement therebetween.

25. (previously presented) The apparatus of claim 24 wherein the cylindrical surface of the anvil which mates with the knife cylinder during rotation of the knife cylinder has a circumference which is different from the circumference of the path of the tip of the knife, so that the knife tip mates with a different circumferential part of the anvil each time the knife cylinder is fully rotated.

26. cancelled

27. (currently amended) ~~Apparatus for forming labels from web comprising:~~

~~a source of label material in web form, the web having spaced apart indicia;~~

~~means for feeding said web along a flow path toward a means for cutting;~~

~~means for cutting said web to form labels;~~

~~means for receiving said labels from the cutting means;~~

The apparatus of claim 6, wherein said web of sheet material has indicia spaced apart along the web length, further comprising:

a first sensor, positioned downstream of the cutter assembly~~cutting means~~, for sensing indicia lengths;

means for comparing lengths of indicia which are severed during forming of a label, based on first sensor reading information; and,

means for adjusting the length of a subsequent label, according to how the difference in lengths of an indicium which is severed during the forming of a label.

28. (currently amended) ~~Apparatus for forming labels from web comprising:~~

~~a source of label material in web form, the web having two sets of spaced apart indicia which are sensible by a sensor, the indicia sets arranged relative to each other to provide lengthwise spaces S between an indicia pair comprised of first set indicium and a second set indicium; means for feeding said web along a flow path toward a means for cutting;~~

~~means for cutting said web to form labels;~~

~~means for receiving said labels from the cutter means;~~

The apparatus of claim 6, wherein said web of sheet material has two sets of spaced apart indicia which are sensible by a sensor, the indicia sets arranged relative to each other to provide lengthwise spaces S between an indicia pair comprised of first set indicium and a second set indicium, further comprising:

a first sensor, positioned downstream of the cutting means, for sensing indicia lengths on the labels;

means for comparing the length of each indicia of a said indicia pair, as measured by the first sensor, with the predetermined known lengths of each indicia which on the web prior to cutting of the label; and,

means for adjusting the length of the web which is subsequently cut into a label when a sensed length is less than said predetermined known length.

29. (previously presented) The apparatus of claim 27 or 28 wherein said means for adjusting comprises changing the amount of web which is fed along the flow path between the cutting of one label and the cutting of a next a label.

30. (original) The apparatus of claim 27 or 28 wherein the means for cutting comprises a rotary knife cylinder and mating anvil; and, wherein the means for adjusting comprises changing the speed or timing of rotation of the knife cylinder.

31. (original) The apparatus of claim 27 wherein the label length is changed according to whether or not there is equality in length of portions of any severed indicium.

32 to 38. (cancelled)

39. (currently amended) The apparatus of claim 96, wherein at least one of said belts runs around a part of the downstream end roller which has a diameter which causes stretching of the outer fiber of said at least one belt as it moves across the roller, to an extent sufficient to create breakaway strain on any adhesive bond between said at least one belt and the pressure sensitive adhesive side of web. ~~the downstream end roller of said means for receiving, where a belt runs, has a diameter relative to the thickness of each belt sufficient to cause stretching of the outer fiber of each of the belts, and to thereby create breakaway strain on any adhesive bond between the belts and a web being moved along the flow path.~~